

## Claims

### What is claimed is:

- 1 1. An interface between a preconcentrator and a piece of  
2 baggage, said interface comprising:
  - 3 (a) a top securing member;
  - 4 (b) a bottom securing member connected to said top  
5 securing member and forming a gap therebetween; and
  - 6 (c) a recess having a perimetrical shape that corresponds  
7 to the perimetrical shape of the exterior of a  
8 preconcentrator, said recess comprising a vent.
- 1 2. The interface of claim 1 further comprising two clamps,  
2 wherein each of said clamps comprises a top lip connected  
3 to said top securing member and a bottom lip connected to  
4 said bottom securing member, thereby forming a gap  
5 therebetween.
- 1 3. The interface of claim 2 wherein the two clamps are  
2 diametrically opposed to one another.
- 1 4. The interface of claim 2 wherein the gap between said  
2 bottom and top lips creates an opening.
- 1 5. The interface of claim 3 wherein each of said clamps  
2 further comprises a lever connected to said top lip,  
3 thereby allowing the opening to expand and contract as said  
4 lever moves toward and away from the center of the  
5 interface, respectively.
- 1 6. The interface of claim 1 further comprising at least one  
2 securing hole within said recess.

- 1 7. The interface of claim 6 wherein said securing hole is  
2 complementary to an electrode of the preconcentrator.
- 1 8. The interface of claim 1 further comprising a first locking  
2 ring.
- 1 9. The interface of claim 8 further comprising a second  
2 locking ring opposite said first locking ring.
- 1 10. An apparatus that serves as an interface between a  
2 preconcentrator and a zipper within a piece of baggage,  
3 wherein said zipper comprises two rows of teeth, said  
4 apparatus comprising:
- 5 (a) means for receiving a preconcentrator;
- 6 (b) means for air to travel through said receiving means;  
7 and
- 8 (c) means for gripping a portion of each row of teeth of a  
9 zipper within a piece of baggage.
- 1 11. The apparatus of claim 10 further including means for  
2 securing at least one post of said preconcentrator to said  
3 apparatus.
- 1 12. The apparatus of claim 10 further comprising means for  
2 securing a lock for said baggage to said apparatus.
- 1 13. The apparatus of claim 10 wherein said gripping means  
2 comprises two clamps, wherein each of said clamps  
3 comprises:
- 4 (i) a bottom lip;

5           (ii)     a top lip creating a gap between said bottom  
6                     and top lips, wherein said gap comprises an  
7                     opening; and

8           (iii)    means for enlarging said opening.

1   14.   The interface of claim 13 wherein the two clamps are  
2         diametrically opposed to one another.

1   15.   An interface between a preconcentrator and a piece of  
2         baggage, said interface comprising:

3         (a)   a recess having a perimetrical shape that corresponds  
4               to the perimetrical shape of the exterior of a  
5               preconcentrator, said recess comprising a vent; and

6         (b)   two clamps, wherein each of said clamps comprises a  
7               bottom lip and a top lip for gripping a portion of the  
8               baggage.

1   16.   The interface of claim 15 wherein the two clamps are  
2         diametrically opposed to one another.

1   17.   The interface of claim 15 wherein the gap between said  
2         bottom and top lips creates an opening.

1   18.   The interface of claim 15 wherein each of said clamps  
2         further comprises a lever connected to said top lip,  
3         thereby allowing the opening to expand and contract as said  
4         lever moves toward and away from the center of the  
5         interface, respectively.

1   19.   The interface of claim 15 further comprising at least one  
2         securing hole within said recess.

- 1 20. The interface of claim 19 wherein said securing hole is  
2 complementary to an electrode of the preconcentrator.
- 1 21. The interface of claim 15 further comprising a first  
2 locking ring.
- 1 22. The interface of claim 21 further comprising a second  
2 locking ring opposite said first locking ring.